IMAGE-FORMING DEVICE

Patent Number: JP11088626

Publication date: 1999-03-30

Inventor(s): YASUDA AKIHIKO

Applicant(s): RICOH CO LTD

Requested Patent: JP11088626

Application Number: JP19970260820 19970909

Priority Number(s):

IPC Classification: H04N1/21; H04N1/00; H04N1/00; H04N1/32; H04N1/387

EC Classification:

Equivalents:

Abstract

PROBLEM TO BE SOLVED: To discriminate whether or not all transmission originals can be transmitted by calculating a required memory consumed capacity and number of originals to be transmitted.

SOLUTION: An original is read by a scanner section 1 and stored in a memory section 2. When an image pattern detection code stored in a transmission information storage section 3 is set, it is given to a pattern detection section 4, and the pattern detection section 4 stores some referenced image pattern information. Then the original image pattern is compared with a referenced image pattern information stored in advance, and an arithmetic processing section 5 discriminates a required memory capacity for the original image pattern and whether or not the original image is contained in a memory residual capacity. A display section 6 displays transmission propriety information denoting whether or not all the pages of the original image is displayed and denoting a memory capacity of each page, and if transmission is available based on the transmission propriety information, a destination number is entered and the destination number is dialed.

Kokai Publication 11 - 88626

[Document Type] Specification

[Title of Invention] Image-Forming Device

[Scope of Claims for Patent]

[Claim 1] An image-forming device having the function of residual memory, comprising: display section that indicates the residual memory, etc.; transmission condition storage section that stores information of transmission condition during image transmission; scanner section for reading the originals for transmission; pattern detection section that detects the image pattern of one page of image read by this scanner section; and arithmetic processing section that compares the image data detected by this pattern detection section to the memory capacity data per one page that is the reference that stores in advance the data from said transmission condition storage section, and calculates the required memory usage capacity and the number of pages of the originals that can be transmitted.

[Claim 2] An image-forming device according to claim 1, comprising automatic resolution correction section that performs automatic resolution correction for each page to make the memory capacity for each page of said scanned image to be close to said reference that is the memory capacity data for each page.

[Claim 3] An image-forming device, comprising transmission and reception control section that during transmission, transmits the information of transmission condition of claim 1 and the information of the resolution and memory capacity for each page of claim 2, and during reception, determines

the transmission image transmitted from the transmitting station has what kind of information of transmission condition and resolution, memory capacity.

[Claim 4] An image-forming device according to claim 3, comprising means that affixes said information of transmission condition and resolution and memory capacity for each page onto receiving paper during reception.

[Detailed Description of the Invention]

[0001]

[Industrial Field of Application]

This invention relates to an image-forming device, in particular, to an image-forming device for control of transmission from memory during transmission by facsimile.

[0002]

[The Prior Art]

(Omitted)

[0003]

[The Problem to be Solved by the Invention]

As described above, during transmission from memory, reading into memory is first performed, and it is determined whether there is memory overflow or not. In the case of memory overflow, direct transmission is selected, and it has to be started afresh, requiring excessive procedure. Moreover, even in the case that there is no memory overflow, during transmission from memory, because of the conditions of the available space in the memory, the image of the original to be transmitted and the number of pages to be transmitted, etc., memory overflow occurs during reading the originals to be transmitted, and it occasionally happens that only the read

originals are transmitted.

[0004]

The present invention is made taking into consideration the situation as described above. The invention of claim 1 is to resolve the aforesaid problem, with the object to compare the data of the display section that indicates the residual memory, etc. and the information of transmission condition (image density, paper size of original) etc., during image transmission stored in transmission condition storage section to the memory capacity data per one page that is the reference that is the image pattern of the image read by the scanner section detected by the pattern detection section and stored in advance, and calculates the required memory usage capacity and the number of pages of the originals that can be transmitted, and determines whether all of the transmission originals can be transmitted or not.

[0005]

The invention of claim 2 has the object that in the invention of claim 1, the memory capacity for each page of the scanned image is made to be close to said reference that is the memory capacity data for each page by performing automatic resolution correction by an automatic resolution correction section, so that even in the case of little memory residual capacity (except the case of extremely small memory residual capacity), all of the transmission originals can be transmitted.

[0006]

The inventions of claims 3 and 4 have the objects that during transmission, the information of transmission condition of claim 1 and the information of the resolution and memory capacity for each page of claim 2 are transmitted, and

contrarily, during reception, the transmission image transmitted from the transmitting station has what kind of information of transmission condition and resolution, memory capacity is determined, and during reception, said information of transmission condition and resolution and memory capacity for each page are affixed onto the receiving paper, visually informing the user of the reception station under what conditions the originals are transmitted.

[0007]

[Means for Solving the Problem]

The invention of claim 1 is an image-forming device having the function of residual memory, characterized in comprising: display section that indicates the residual memory, etc.; transmission condition storage section that stores information of transmission condition during image transmission; scanner section for reading the originals for transmission; pattern detection section that detects the image pattern of one page of image read by this scanner section; and arithmetic processing section that compares the image data detected by this pattern detection section to the memory capacity data per one page that is the reference that stores in advance the data from said transmission condition storage section, and calculates the required memory usage capacity and the number of pages of the originals that can be transmitted.

[0008]

The invention of claim 2 is an image-forming device according to claim 1, characterized in comprising automatic resolution correction section that performs automatic resolution correction for each page to make the memory capacity for each page of said scanned image to be close to said reference that is the memory capacity data for each page.

[0009]

The invention of claim 3 is an image-forming device, characterized in comprising transmission and reception control section that during transmission, transmits the information of transmission condition of claim 1 and the information of resolution and memory capacity for each page of claim 2, and during reception, determines the transmission image transmitted from the transmitting station has what kind of information of transmission condition and resolution, memory capacity.

[0010]

The invention of claim 4 is an image-forming device according to claim 3, characterized in comprising means that affixes said information of transmission condition and resolution and memory capacity for each page onto the receiving paper during reception.

[0011]

[Embodiment of the invention]

Fig.1 is a schematic block diagram of the essential sections for describing an embodiment of the facsimile device as an example applying the image-forming device by the present invention. Fig. 2 is a flowchart for explaining the operation of the present invention. First, the original is read by scanner section 1 and the image of the original is stored in memory section 2. Here, if the image pattern detection code stored in the transmission information storage section 3 is ON, the image of the original is stored into memory section 2 and also input into the pattern detection section 4. In pattern detection section 4, some image pattern information that are the references are stored, and the pattern of the image of the original and the image pattern information that

are the references stored in advance are compared, and the required memory capacity for the pattern of the image of the original at the arithmetic processing section 5 and whether the image of the original is within the residual capacity of the memory are determined. The determination here is analyzing by also adding the data of the image density and page size, etc., in the transmission information storage section 3. At display section 6, transmission propriety information whether all pages of the image of the original can be sent and the memory capacity of each page are displayed. According to the transmission propriety information, if transmission is possible, the number of the party to be called is entered and called. Moreover, for the case that only a part of the whole page (only the image read into the memory) can be transmitted due to memory overflow, transmission can be interrupted. In addition, it is also possible to forcefully transmit only the image read into the memory (claim 1).

[0012]

If the automatic resolution correction code in said transmission information storage section 3 is ON, at the automatic resolution correction section 7 and the arithmetic processing section 5, automatic resolution correction is performed for each page so that all pages of the image of the original by the residual capacity in the memory are transmitted.

[0013]

At the transmission station, the data in the transmission information storage section are sent from the transmission and reception control section 8 to the reception station. At the reception station, the transmitted image has what kind of transmission condition information and resolution, memory

capacity is determined at the transmission and reception control section 8 (claim 3). Moreover, at the reception station, when image is being formed at the plotter section 9 during reception, the transmission condition information and resolution, memory capacity, etc., of each page are plotted as the header and footer of each page. Alternatively, the transmission condition information and resolution, memory capacity, etc., of each page are plotted as a list in one page (claim 4).

[0014]

[Effect of the invention]

The invention of claim 1 comprises: display section that indicates the residual memory; transmission condition storage section that stores the data of information of transmission condition (image density, paper size of original), etc., during image transmission; and means that determines the image density pattern of the image read by scanner section, and compares with the memory capacity data per one page that is the reference stored in advance, and calculates the required memory usage capacity and the number of pages of the originals that can be transmitted, and can determine whether all the transmission originals can be transmitted.

[0015]

The invention of claim 2 can make it possible that in the invention of claim 1, the memory capacity for each page of the scanned image is made to be close to said reference that is the memory capacity data for each page by performing automatic resolution correction by an automatic resolution correction section, so that even in the case of little memory residual capacity (except the case of extremely small memory residual capacity), all of the transmission originals can be

transmitted.

[0016]

For the inventions of claims 3 and 4, by having in the invention of claim 1 a transmission and reception control section that during transmission, transmits the information of transmission condition of claim 1 and the information of the resolution and memory capacity for each page of claim 2, and contrarily, or during reception, contrarily, determines the transmission image transmitted from the transmitting station has what kind of information of transmission condition and resolution, memory capacity (claim 3) and means that affixes said information of transmission condition and the resolution and memory capacity for each page onto the receiving paper during reception (claim 4), visually informing the user of the reception station under what conditions the originals are transmitted is possible.

[Brief Description of the Drawings]

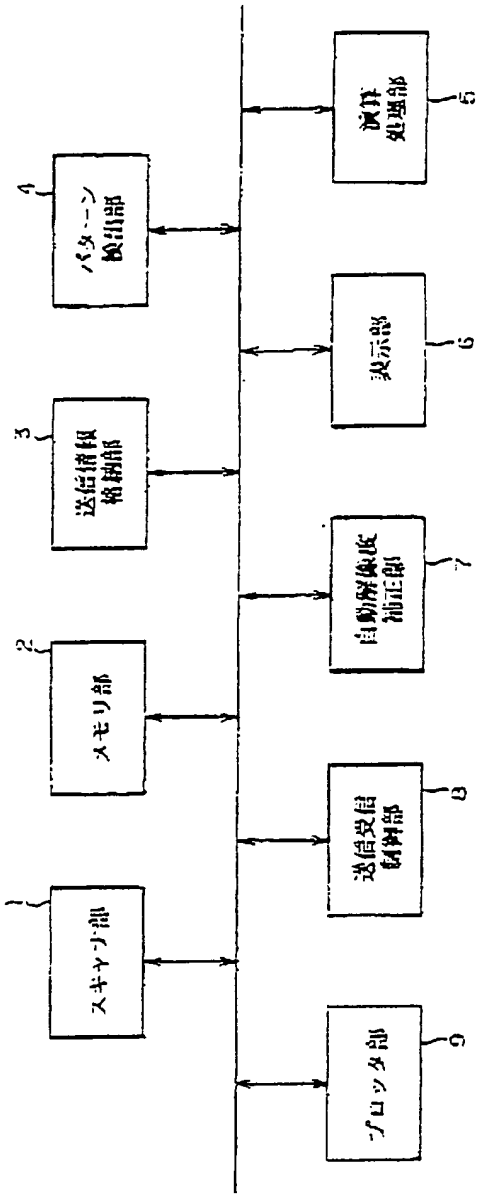
[FIG. 1] A schematic block diagram of the essential sections for describing an embodiment of the facsimile device as an example applying the image-forming device by the present invention.

[FIG. 2] A flowchart for explaining the operation of the present invention.

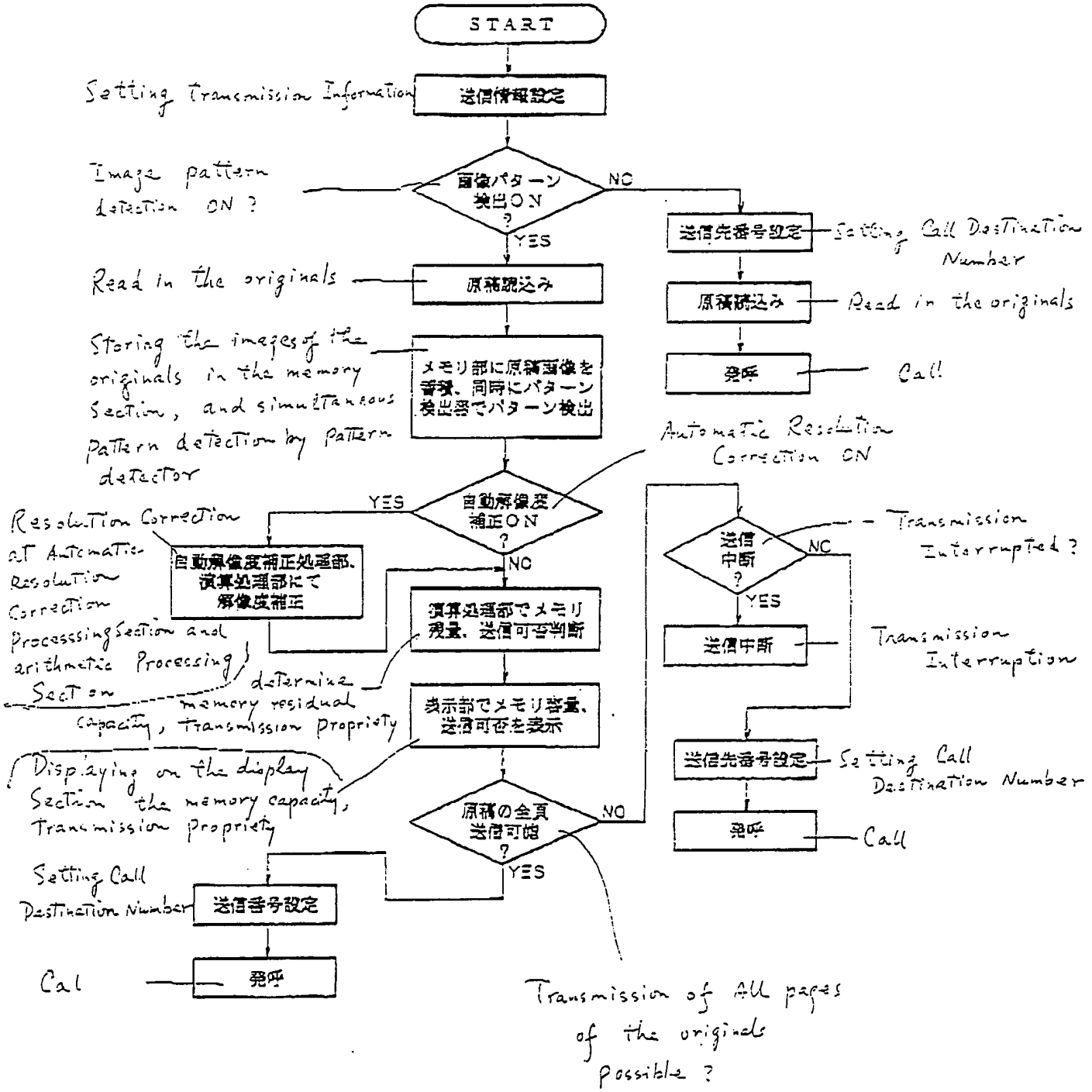
[Description of the symbols]

1 Scanner Section
2 Memory Section
3 Transmission Information Storage Section
4 Pattern Detection Section
5 Arithmetic Processing Section
6 Display Section
7 Automatic Resolution Correction Section
8 Transmission and Reception Control Section
9 Plotter Section

【図1】


スキャナ部
1
メモリ部
2
送信情報
格納部
3
パターン
設定部
4
演算
処理部
5
表示部
6
自動解像度
補正部
7
送信受信
制御部
8
プリンタ部
9

【図2】


START
Setting Transmission Information
送信情報設定
Image pattern detection ON ?
画像パターン検出ON ?
NO
YES
送信先番号設定
Setting Call Destination Number
Read in the originals
原稿読込み
原稿読込み
Read in the originals
Storing the images of the originals in the memory Section, and simultaneous pattern detection by pattern detector
メモリ部に原稿画像を蓄積、同時にパターン検出器でパターン検出
発呼
Call
Automatic Resolution Correction ON
自動解像度補正ON ?
YES
NO
Resolution Correction at Automatic Resolution Correction Processing Section and arithmetic Processing Section
自動解像度補正処理部、演算処理部にて解像度補正
演算処理部でメモリ残量、送信可否判断
determine memory residual capacity, Transmission Propriety
表示部でメモリ容量、送信可否を表示
Displaying on the display Section the memory capacity, Transmission Propriety
送信中断 ?
Transmission Interrupted ?
NC
YES
送信中断
Transmission Interruption
送信先番号設定
Setting Call Destination Number
発呼
Call
原稿の全頁送信可能 ?
NO
YES
Setting Call Destination Number
送信番号設定
Cal
発呼
Transmission of All pages of the originals possible ?

LOCATION:

This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☑ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☑ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.
As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.